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## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P01158WO	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/DE00/00038	International filing date (day/month/year) 05 January 2000 (05.01.00)	Priority date (day/month/year) 08 January 1999 (08.01.99)
International Patent Classification (IPC) or national classification and IPC G06T 7/60		
Applicant DEUTSCHES KREBSFORSCHUNGSZENTRUM STIFTUNG DES ÖFFENTLICHEN RECHTS		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 1 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

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Date of submission of the demand 19 July 2000 (19.07.00)	Date of completion of this report 09 April 2001 (09.04.2001)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/DE00/00038

## I. Basis of the report

1. This report has been drawn on the basis of *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

☐ the international application as originally filed.

☒ the description, pages 1-16, as originally filed,  
pages \_\_\_\_\_, filed with the demand,  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_,  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

☒ the claims, Nos. 3 (in part), 4-20, as originally filed,  
Nos. \_\_\_\_\_, as amended under Article 19,  
Nos. \_\_\_\_\_, filed with the demand,  
Nos. 1, 2, 3 (in part), filed with the letter of 13 December 2000 (13.12.2000),  
Nos. \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

☒ the drawings, sheets/fig 1/2, 2/2, as originally filed,  
sheets/fig \_\_\_\_\_, filed with the demand,  
sheets/fig \_\_\_\_\_, filed with the letter of \_\_\_\_\_,  
sheets/fig \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

2. The amendments have resulted in the cancellation of:

☐ the description, pages \_\_\_\_\_

☐ the claims, Nos. \_\_\_\_\_

☐ the drawings, sheets/fig \_\_\_\_\_

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.  
PCT/DE 00/00038

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Claims	1-20	YES
	Claims		NO
Inventive step (IS)	Claims	1-20	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-20	YES
	Claims		NO

### 2. Citations and explanations

#### 1. This report makes reference to the following documents:

D1: Long et al.: "Comparative evaluation of image segmentation methods for volume quantitation in SPECT", Medical Physics, US, American Institute of Physics, New York, Vol. 19, No. 2, 1 March 1992, pages 483-489

D2: US-A-4 856 528 (Yang et al.), 15 August 1989.

#### 2.1 The present application meets the requirements of PCT Article 33(2) because the subject matter of Claims 1 and 11 is novel and involves an inventive step (PCT Article 33(3)).

Re. Claim 1:

D1 discloses:

- a method for determining volumina in the human or animal body by using a suitable imaging method to sense image data regarding a volume of interest (see the abstract, lines 1-2, supported by page 483, left-hand column, lines 1-11), by segmenting the sensed image data manually, semi-automatically or

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International application No.  
PCT/DE 00/00038

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Claims	1-20	YES
	Claims		NO
Inventive step (IS)	Claims	1-20	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-20	YES
	Claims		NO

### 2. Citations and explanations

1. This report makes reference to the following documents:

D1: Long et al.: "Comparative evaluation of image segmentation methods for volume quantitation in SPECT", Medical Physics, US, American Institute of Physics, New York, Vol. 19, No. 2, 1 March 1992, pages 483-489

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- 2.1 The present application meets the requirements of PCT Article 33(2) because the subject matter of Claims 1 and 11 is novel and involves an inventive step (PCT Article 33(3)).

Re. Claim 1:

D1 discloses:

- a method for determining volumina in the human or animal body by using a suitable imaging method to sense image data regarding a volume of interest (see the abstract, lines 1-2, supported by page 483, left-hand column, lines 1-11), by segmenting the sensed image data manually, semi-automatically or

entirely automatically (see page 483, left-hand column, lines 23-29) and by automatically determining from the segmented image data a size indication of the volume of interest (see page 483, left-hand column, lines 12-18).

However, D1 does not disclose:

- (a) that a previously determined characteristic value is associated with the image data sensing and segmenting method steps, the characteristic value representing a measure for the error of these method steps;
- (2) that an error is derived from the associated characteristic value as a measure for the error when determining the size indication; and
- (3) that the error value can be displayed or outputted, preferably associated with the size indication.

In Figures 3-5, pages 486 and 487, of D1, error bars are depicted on the volume curves to indicate error deviations.

D2 discloses that the selected layer thickness between the individual CT scans leads to an inaccuracy of up to 1.9% in the volume determined when sensing image data (see column 12, lines 4-8). However, D2 does not describe the association of a previously determined characteristic value with the image data sensing and segmenting steps, the characteristic value representing a measure for the error of these method steps.

An inventive step within the meaning of PCT Article 33(3) can be regarded as established.

**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**

International application No.

PCT/DE 00/00038

Re. Claim 11:

Claim 11 is the corresponding device claim to the present method Claim 1 and meets the requirements of PCT Article 33(2) and (3) for the same reasons given above for Claim 1. It is noted that the additional feature of a data memory mentioned in Claim 11 is implicit in D1, since the method described therein is performed with a computer, which always contains a data memory.

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.  
PCT/DE 00/00038

## VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

3. Contrary to PCT Rule 5.1(a)(iii), the description is not in line with the claims.

Contrary to PCT Rule 5.1(a)(ii), the description does not cite documents D1 and D2 and does not indicate the relevant prior art disclosed therein.